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Wider benefits of education: skills, higher education and civic engagement

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John Bynner/Tom Schuller/Leon Feinstein

Wider Benefits of Education: Skills, Higher Education and Civic Engagement

Zusammenfassung: Zu Beginn wird das Wider Benefits of Learning Research Centre der Universität London vorgestellt, das sich mit den nicht-ökonomischen Effekten des Lernens und der Bildung auf individueller und kollektiver Ebene beschäftigt. Nach einer Erläuterung des theoretischen Rahmens der Studien, der auf den frei Konzepten Humankapital, Soziales Kapital und Identitätskapital beruht, werden die Ergebnisse zweier britischer Longitudinalstudien (Beginn: 1958 bzw. 1970) vorgestellt. Insbesondere werden die Folgen der Teilhabe an Bildung in den Bereichen Gesundheit, Wohlbefinden, soziale Einstellungen und politisches Involvement differenziert aufgezeigt. Die Schlussfolgerung lautet: Regierungen sollten wissen, dass Bildung nicht einfach eine Möglichkeit, sondern eine unabdingbare Voraussetzung für die Beförderung von persönlichem Wohlbefinden und einer kohäsiven Gesellschaft ist.

1. Introduction¹

1.1 Initiating research on the wider benefits of learning

The Centre for Research on the Wider Benefits of Learning was set up in 1999 by the Department for Education and Skills, with the following brief:

- to produce and apply methods for measuring and analysing the contribution that learning makes to wider goals including (but not limited to) social cohesion, active citizenship, active ageing and improved health;
- to devise and apply improved methods for measuring the value and contribution of forms of learning including (but not limited to) community-based adult learning where the outcomes are not necessarily standard ones such as qualifications;
- to develop an overall framework to evaluate the impact of the UK Government's lifelong learning strategy, set out in a 'Green Paper' entitled The Learning Age, in February 1998; the framework should cover both economic and non-economic outcomes.

The Centre comprises partnership between the Institute of Education and Birkbeck College, both colleges of London University, with its administrative base in the Institute. The motivation behind the setting up of the Centre was expressed as follows by the then Secretary of State for Education and Employment, David Blunkett, in a challenging speech to social scientists: „We need research which leads to a coherent picture of how society works, what are the main forces at work and which of these can be influenced by

1 We are grateful to the following for their work on the data reported in Part 3: Cathie Hammond, John Preston, Lars Malmberg and Laura Woods; and to Peter Dolton, Gerry Makepeace, Laura Woods and Lars Malmberg for their work on the data reported in Part 2.

Government, for example intergenerational poverty, low aspirations, employability, participation in society or exclusion, reducing crime, discrimination and prejudice, poor parenting, the quality of a school and its teachers...“.

The Centre is therefore part of a more general movement on the part of this government to base policy on evidence, and directly to fund research which will provide that evidence. At the same time as the WBL Centre was launched another research centre was established to cover the economic aspects of education, and since then two further centres have been set up, on evidence-based policy making, and on IT and education. It is worth noting that the two ministers behind the initial setting up of these centres, Malcolm Wicks and Baroness Blackstone, had both themselves been practising social scientists.

The Centre's work is clearly policy related. However, contrary to some criticisms voiced by academic colleagues, this does not prevent us from engaging in work which contributes to scholarly theory-based research. Our analyses deal with two rather different senses of 'wider benefits':

- *non-economic* benefits, i.e. those which are not measured directly in terms of additional income or increased productivity and therefore contribute to the 'quality of life'
- benefits *above the level of the individual*, i.e. from family/household through community to the wider society, as well as those accruing to individuals, and therefore contributing to 'social cohesion'.

In both cases, there are boundary issues, i.e. problems of defining exactly what is meant and how this is to be distinguished from other factors in such a complex field. Most obviously, many of the relationships between learning and other spheres, are strongly mediated by income and employment; and benefits to the community often feed through the benefits to individuals. However our starting points are as defined above.

The Centre's first phase involved preliminary scoping work and literature reviews covering these broad fields (Schuller et al. 2001; Plewis/Preston 2001)². We also conducted some initial analysis of particular aspects, drawing on large scale longitudinal data, for instance: the impact of people's lack of basic skills on a number of life domains (Bynner et al 2001); the social benefits of higher education (Bynner/Egerton 2001; Bynner et al. 2002); and perceptions by tutors in further education colleges of the benefits of learning (Preston/Hammond 2002). We draw on the first two of these and the more extensive investigation of the social benefits of higher education for the findings we present below.

One important preliminary conclusion from this first phase was that educational research has tended to focus on issues to do with participation in learning, and the factors which encourage or discourage this, far more than with the outcomes of learning: what

2 We were assisted on this by an excellent thinkpiece from Peter Alheit of Göttingen University on 'Social Capital, Education and the Wider Benefits of Learning: A Review of 'Models' and Qualitative Research Outcomes'.

actually happens to people and to communities as a result of their learning. Despite significant work in the US by Behrman and Stacey (1997) and Haveman and Wolf (2002), we are not aware of any substantial body of literature, which covers non-fiscal benefits in any systematic way. We identify some reasons for this in another paper (Schuller/Bynner 2001).

The second phase of WBL work, which we are just completing, has comprised primary fieldwork and linked follow up work on large-scale longitudinal datasets. We have concentrated on a small number of domains, notably health (see Hammond 2002), crime (Feinstein 2002), family formation and family learning (Blackwell/Bynner 2002; Brassett-Grundy 2002) and social cohesion, but have also addressed the domain of crime. A particular strand has been the production of econometric analyses of the benefits of learning, which plays directly to the policy interests of the Treasury (Finance Ministry), but we have spent much time relating this work to the fieldwork research. Indeed, a central emerging feature of the Centre's work is the integration of qualitative and quantitative work.

1.2 The Cohort Studies

A distinctive feature of the quantitative work that we draw on for this paper is the use of large-scale longitudinal datasets, which are available to us through the Centre for Longitudinal Studies in the Institute of Education. We use two of these to estimate the long term returns to individuals of learning experiences – the National Child Development Study (NCDS) based on a cohort born in 1958 and the 1970 British Cohort Study (BCS70) based on cohort born in 1970. Details of each study are supplied below.

National Child Development Study (1958 cohort NCDS)

Population: The National Child Development Study (NCDS) study began with a perinatal mortality study of 17,000 births in a single week in March 1958. The whole cohort was followed up subsequently at ages 7, 11, 16, 23, 33 and most recently, 42 (Davie/Butler/Goldstein 1972; Ferri 1993; Shepherd 1997). At age 37 a 10% sample of cohort members had their literacy and numeracy skills assessed using specially designed tests (Bynner/Parsons 1997; Parsons/Bynner 1998). From the original 15,566 who took part in the first follow-up, when the longitudinal study was established, 11,419 were still participating at the time of the 42 year survey a response rate of (73%).

Method and coverage: The method and coverage of data collection in each survey depended on the stage of life the cohort members had reached. During the cohort members' childhood, parents, teachers and headteachers were the main sources of information and the children were tested. By age 16, cohort members themselves provided much of the information and through adulthood. Partners of cohort members were also questioned at age 33. From age 23 data have been collected by survey interview, most recently at age 42 using Computer Aided Personal Interviewing (CAPI). Family

background, cognitive and behavioural development and educational achievement, were the main focus in the school years. Vocational education and training, employment, family formation and parenting, health and social and political participation and attitudes, comprised the main subject matter through adulthood. In the 33- and 42-year surveys, a substantial battery of social attitude and other self-assessment measures was also included.

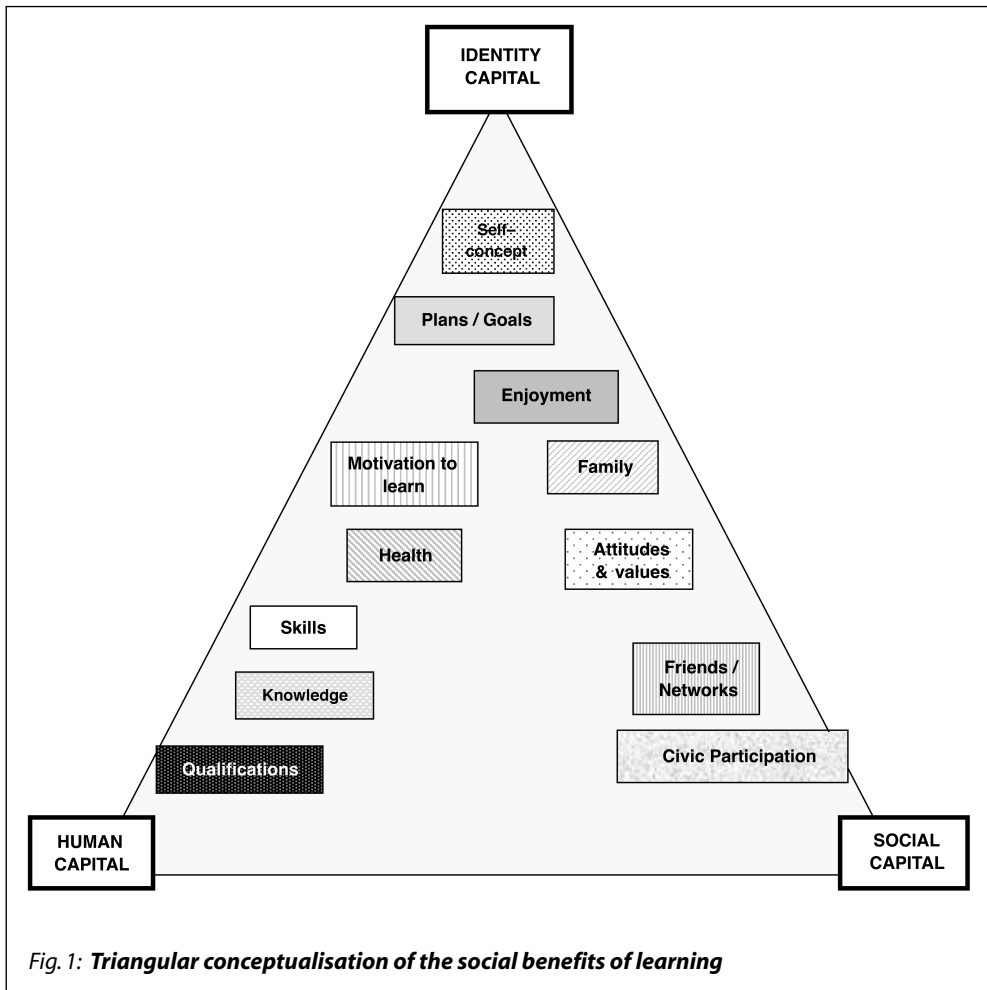
1970 British Cohort Study (1970 cohort – BCS70)

Population: The 1970 British Cohort Study (BCS70) follows a similar pattern to the National Child Development Study (NCDS). It began with a birth survey of the 17,000 babies born in a week in April 1970. Data were collected subsequently at ages 5, 10, and 16, 26 and, most recently, at age 30 (Butler/Golding/Howlett 1985; Bynner et al. 2001). Paralleling the comparable NCDS basic skills survey, a 10% sample survey of 1,640 focusing on basic skills and including a literacy and numeracy assessment was carried out at age 21 (Ekinsmyth/Bynner 1994; Bynner/Steedman 1995). A postal survey of the cohort was carried out at age 26 and a full interview survey coordinated with the 42 year NCDS survey (using a common CAPI instrument) was carried out at age 30. From the 13,136 or took part in the first follow-up survey, 11,261 were still participating in the most recent survey at age 30, a response rate of 86%.

Methods and coverage: During the school years, methods of data collection were similar to those of NCDS with data collected from parents (by health visitors), teachers and head teachers up to age 10. At ages 10 and 16 there were also medical examinations conducted by doctors. At age 16, dietary and leisure diaries were also used alongside a battery of self-completion questionnaires to assess behavioural and psychological attributes. Coverage was wider than in NCDS with the medical focus at birth broadening to encompass physical, cognitive and behavioural development at age 5; physical educational and social development at age 10 and 16 and physical, educational, social and economic development at the age of 26. In adulthood the questioning has largely converged with that of NCDS, with the study spanning all the main domains of adult life: education, employment, housing, family formation and health, citizenship and values. Table 3 also gives the response rates for the survey.

We use the datasets for the two studies for three purposes.

- First we draw on the analysis of the data collected in the basic skills sub-sample surveys to demonstrate the benefits of basic skills enhancement in a number of ‘non-economic’ domains.
- Secondly, we use the data from the most recent surveys of cohort members at ages 33 and 42 in NCDS, and the most recent survey in BCS70 of cohort members at age 30, to estimate the wider benefits of gaining a degree through higher education.
- Thirdly, we use the data collected in the 1958 cohort study at ages 33 and 42 to assess the wider benefits of participating in any form of education over the period 33 to 42.



1.3 Fieldwork

Our quantitative analysis is complemented by results from fieldwork involving over 140 interviewees. These were drawn from three geographical areas, chosen for their diversity: Camden in North London, an inner-city area of high ethnic diversity; Tendring in Essex, a semi-rural area with a mainly white population of below average income; and Nottinghamshire, a county that combines urban and rural, with a spread of socio-economic lifestyles (for a full account of the work, see Schuller et al 2002; the report is downloadable from the Centre's website, on www.learningbenefits.net).

Figure 1 sets out the framework we have begun to use in our analyses. The triangle is constructed around the three poles of human capital, social capital and identity capital. The items located within the triangle may be seen as relating to various kinds of capability (Sen 1992, 1999). The sides of the triangle therefore approximate to the socio-

economic, the socio-psychological and the psycho-economic. The inside of the triangle represents capabilities, that is to say, the means of achieving personal and collective goals.

The triangle is designed to recognise the fact that these three dimensions intersect, and that many of the outcomes are a combination of two or all three of the polar concepts. Thus health (physical or mental) may be affected by the capabilities a person is able to deploy, or by the sets of relationships in which they are involved and by their personal outlook on life and view of themselves; and all these factors interact.

Human capital requires little elaboration, being already a well-known concept. It refers to the knowledge, skills and qualifications that individuals acquire as a consequence of organised learning. These are the most obvious outcomes of learning – even though the measurement of skills and knowledge is not straightforward (see for example Eraut 2000, on tacit knowledge). Human capital theory was developed mainly in an economic context, to explain why individuals or groups of individuals (up to the level of nation) vary in income, productivity or career chances. But it has also been used to include characteristics such as health – both, it is worth noting, as a component of human capital and as an outcome. We are interested in how far the acquisition of knowledge, skills and qualifications leads to other outcomes, but also whether it leads to further learning.

Social capital is a relative newcomer to social sciences. It draws on several theoretical sources, including that of Pierre Bourdieu, but has developed real impetus in recent months as a concept of major potential policy significance (e.g. see Baron et al. 2000; ONS 2001). We use it here to refer to the norms and networks that bring people together to mutual advantage (Putnam 2000). Unlike human capital it is not, or not only, a personal attribute or asset, but refers to the relationships that exist between individuals or groups of individuals. It is most commonly operationalised by reference to attitudinal measures, e.g. of expressed trust, or, more substantively, to behavioural measures such as levels of participation in civic activities. It is the latter set that is more central to our use of the concept, so we are exploring what the mechanisms are that underpin the association between levels of education and participation in most forms of civic activity; but we are also interested in the way learning affects the extent to which people show tolerance and other characteristics that bind social units together.

Identity capital refers to the characteristics of the individual that define his or her outlook and self-image. It includes specific personality characteristics, such as ego strength, self-esteem and internal locus of control (see Côté 1997). Our work supports many other studies as to the importance of education in increasing self-confidence; we have, however, aimed to advance the discussion by mapping out the various ways in which self-confidence manifests itself, from highly individualised forms to greater competence in taking part in social or community activities. Identity cannot be defined in isolation from the person's competences, nor from the social networks to which they belong.

Obviously the model is a simplification, in two senses. First, there are many more areas, which could be included in the triangle as actual or potential outcomes of learning. One example, which is relevant to our own possible programme of research

but not included in the triangle as here presented, is criminal activity (or its obverse, law-abiding behaviour), but there are many others. The model is thus not comprehensive in its content, but is designed to serve as a framework to which other issues can be related.

Secondly, the model appears static. The areas included in the triangle are not necessarily final outcomes. In some contexts, they could be regarded as intermediate outcomes on the way to more general benefits. For example, participation in civic activity may be seen as a good in itself, something which is regarded as a defining feature of a flourishing and healthy society. However it can also be regarded as a means to a further end, in the sense that civic engagement leads to greater social cohesion. Similarly good health is valued in its own right but is also a key component of the 'quality of life'. In our view therefore, it does not make sense to attempt to define a single linear sequence with discrete categories of intermediate and final outcomes, which hold good in all circumstances. This is why we use the term 'capability' as well as outcome: capabilities are the products of learning, which can be ends in themselves, but also function as the means to other social and economic goods.

The results, which follow in the next sections, should therefore be seen as part of a programme where we aim to combine quantitative and qualitative analysis to give a more holistic picture than is generally possible. The kinds of question we are interested in include:

- In relation to which outcomes can educational effects be identified and which in general are strongest?
- How do these effects vary according to the type of learning involved, for instance in terms of content, pedagogy, locations etc?
- With what degree of confidence can these benefits be quantified? And, as a rather different question, can they also be monetarised, ie a monetary value placed upon them?
- Are there any negative effects from education, and who bears them?
- What are the interactions between formal learning and other means of personal development?
- What policy implications can be drawn?

We can only address part of this agenda in this paper. But it is worth bearing in mind that in the UK, public policy and public expenditure are subject to an extremely centralised financial control exercised by the Treasury (Finance Ministry) with responsibility for government finance. Education, like other spending departments, is subject to rigorous examination in order to be able to claim its share of budget allocations. This presents powerful methodological challenges. In our view, it is entirely healthy for educationalists to try to answer these challenges; the important thing is to make sure that the answers are as rigorous as possible, without being misleading through over-precision.

2. Both Ends of the Scale: The Non-Economic Effects of Basic Skills and Higher Education

2.1 The outcome variables

We turn now to empirical results. The outcome variables with which we are concerned in both this and the following section fall into four broad categories – health, wellbeing, social attitudes, and civic/political involvement – although we do not present them in exactly the same way in this and the following section. We are interested in the effects of education on all these areas. Two types of variable are distinguished: ‘binary variables’ comprising just two values and ‘continuous variables’ comprising three or more values. They are operationalised as follows:

Health behaviour

- *Smoking* – Binary variable: whether or not the respondent smokes. Also a continuous variable (smokers only): Amount smoked measured in terms of the number of cigarettes smoked per week.
- *Drinking* – Continuous variable: measured in terms of number of units of alcohol consumed per week.
- *Level of exercise* – Binary variable: whether or not the respondent had increased the frequency per week of taking serious exercise.
- *Body Mass Index* – Continuous variable: weight (kg) divided by height squared (m^2).

Wellbeing

- *Life satisfaction* – Continuous variable based on two items with scores between 0 and 10: how satisfied the respondent is with the way their life has turned out so far; and how satisfied they expect to be in ten years time.
- *Malaise (depression)* – Continuous variable, using the 24-item Malaise inventory to indicate level of depression. Also used as a binary variable distinguishing between being ‘depressed’ and ‘not depressed’, based on a threshold score of 8 or more depression items endorsed.
- *General Health* – A continuous variable measured on a four point self-rating scale comprising the scale points ‘excellent’, ‘good’, ‘fair’ and ‘poor’.

Social attitudes

- *Racial tolerance* – Continuous variable measured on a 5-point scale derived from responses to five statements to do with attitudes to people from different races, as neighbours, work colleagues and so on.
- *Political cynicism* – Continuous variable measured on a 5-point scale derived from responses to three statements to do with attitudes to political parties and the gov-

ernment. The variable measures how far people hold cynical attitudes to the government process: for example, „None of the political parties would do anything to benefit me“.

- *Support for authority* – Continuous variable measured on a 5-point scale derived from responses to six statements to do with attitudes to various forms of legal and moral authority; for example, „The law should be obeyed even if a particular law is wrong“.

Political involvement

- *Political interest* – Continuous variable indicating level of interest in politics measured on a four point scale comprising the scale points: ‘very’, ‘fairly’, ‘not very’ and ‘not at all’.
- *Civic memberships* – Binary variable: based on respondent had any membership of, for example, a political party, a charity or voluntary group, women’s groups, towns-women’s guilds, parents and teacher associations and tenants and residents associations.
- *Voting* – Binary variable: indicating whether or not respondent had voted in the last general election.

We examine first the evidence on the effects of basic skills – literacy and numeracy –, then evidence on the effects of higher education, and finally evidence on the effects of any form of participation in adult education when aged in the 30s.

2.2 *Literacy and numeracy*

The issue of basic skills – literacy and numeracy – has moved high up the political agenda in the UK, as it has in many other OECD countries. Table 1 sets out, for 1970 cohort data, a summary of the effects of adult literacy and numeracy on non-economic outcomes, differentiated also by gender. The figures in the table are standardized regression (beta) coefficients in which the scale of measurement for each variable has a mean of zero and a standard deviation of 1³. Each beta coefficient gives an estimate of the proportional increase in the value of the outcome variable measured at age 26, given a unit (one standard deviation) increase in the predictor variable (literacy or numeracy scores) measured at age 21, taking account of a large number of family circumstances and achievement variables for which measures were collected earlier on in the study. Thus for an increase of one standard deviation in a 21 year old woman’s literacy score there is a decline of .07 of a standard deviation in her political cynicism score a age 26. The estimates shown in the table are those that were statistically significant at the

3 The standard deviation is the statistical measure of the spread or variability of a distribution of the values of a variable around the mean value.

.05 level. That is to say the odds are greater than 19:1 that the estimate could have arisen by chance. Full details are supplied of the measures employed and the analysis carried out are given in Bynner et al (2001).

Tab.1: Effects of adult literacy and numeracy on non-economic Outcomes				
Effect	Literacy		Numeracy	
	Male	Female	Male	Female
Malaise	n.s	-0.11	-0.11	n.s
Smoking	n.s	-0.07	-0.15	n.s
Voting	0.09	n.s	n.s	0.09
Political interest	0.10	0.08	n.s	n.s
Political Cynicism	n.s	-0.07	-0.17	n.s
Racial tolerance	0.09	n.s	n.s	n.s
Note: n.s = not statistically significant (P=.05)				

Depression: There is a clear negative association between Malaise and possession of literacy and numeracy skills. It appears that for men it is increased numeracy that relates to reduction in the Malaise score, and for women it is increased literacy.

Basic skills are so fundamental to people's chances of living a decent life that this association is not surprising. Without these skills, the chances of unemployment and material poverty are much higher, and depression is in large part a function of this. In addition, being literate and numerate gives people access to information and assistance in dealing with the kinds of problems associated with unemployment.

In our fieldwork, one of the main outcomes was the demonstration of a link between participation in learning and mental well-being. This can be understood in two senses, although they overlap. First, education helps people to transform their lives in positive ways, moving on from difficult circumstances to better themselves. But a second, and much less remarked effect, is the way taking part in learning helps people to sustain their mental health – in other words, it prevents them from being dragged down into depression by the challenges and stresses of everyday life. This was especially clear amongst parents (predominantly mothers) of young children, where education provides a crucial break from the enveloping routines of childcare, and contact with adult life, which counterbalances the demands of infants.

Smoking: Smoking is one important aspect of physical health. Here there is a positive effect, in the sense of reduced smoking (negative coefficients, for both sexes). The effect is stronger for men than for women, and again it is numeracy that matters for men and literacy for women. The simplest explanation is that people without basic skills are less able to access information which tells them about how to live a healthy life, and in particular about the health hazards of smoking. A more complex explanation is that health

is closely associated with people's perceptions about how far they are in charge of their own lives, and possession of basic skills is an important factor in influencing that perception.

Civic participation and social attitudes: The next two rows of Table 1 deal with voting, and whether or not people express an interest in politics. For the former it appears that literacy has a positive effect for men and numeracy has for women, both at the same level. An interest in politics is promoted by literacy for both sexes. Possession of basic skills is also negatively associated with political cynicism for both men and women. The explanation is likely to be that if you have these basic skills, you are more likely to feel part of society rather than alienated from it, and to feel that social institutions have something to offer you and your fellow citizens.

Finally, we note the optimistic result that basic skills are positively related to racial tolerance (again measured on a short attitude scale), at least for men. Again, our field-work confirms that participation in education generally fosters racial tolerance. This may occur as a function of the content of what is taught, for instance if the course directly addresses social issues. But it is more likely to be a consequence of contact with people from other ethnic backgrounds in a shared learning activity in the relatively neutral environment of a college that helps people to lose some of their prejudices, whatever the actual content of the course.

2.3 Higher education

We turn now to look at the other end of the social scale: the effects of higher education in producing benefits in much the same 'non-economic' domains. This time we use the whole NCDS and BCS70 datasets to estimate the size of the effects, and to show any changes between the two cohorts born 12 years apart. For outcomes measured as continuous variables the statistical estimation method used is Ordinary Least Squares Regression, and for those measured as binary variables, logistic regression. We use unstandardized estimates of the regression coefficients. These give, in the case of the continuous outcome variables, the proportional increase in the outcome score for gaining a degree as opposed to gaining only the entry qualification for higher education (A-levels), but not taking up the opportunity. For the binary outcome variables the results are given as marginal probabilities of the outcome for gaining a university degree, as opposed to going no further than A levels. Again the estimates take into account earlier circumstances and achievements in order to minimise the problem of selection bias, i.e. the risk of concluding that an apparent return is due to higher education experience, rather than to pre-existing differences between graduates and others prior to entry to higher education.

Analysis was carried out separately for the 1970 cohort (BCS70) at age 30, and for the 1958 cohort (NCDS) at ages 33/42. Comparison between the effects at age 30 (BCS70) and at age 33 (NCDS) gives some indication of whether changes are taking place in the effects over time, perhaps due to some societal or 'cohort' effect, such as the

expansion of the graduate population. Comparisons between ages 33/42 in NCDS give an indication of how well the effects of higher education identified at age 33 have changed by age 42, evidence of an 'age' effect. Table 2 sets out the results for the different outcomes that were the subject of this investigation (full details of the measurements involved and the analysis are supplied in Bynner et al. 2002). As for the previous analysis the figures cited are all statistically significant at the .05 probability level.

Tab.2: Summary of marginal effects of a University Degree over A levels			
Outcome Variable	British Cohort Study 1970	National Child Development Study 1958	
	At age 30	At age 33	At age 42
Depression score (range 0-24)- continuous	-0.39	-0.28	-0.21
Body mass index score- continuous	-0.72	-0.27	-0.44
Smoking probability (per cent)-binary	-0.05	-0.11	-0.07
Amount smoked mean number (cigarettes), smokers only- continuous	-1.22	-3.04	-0.41
Race tolerance score (1-5) – continuous	0.25	0.28	0.34
Support for authority score (1-5) – continuous	-0.29	-0.34	-0.23
Political cynicism score (1-5) – continuous	-0.14	-0.13	-0.21
Voting probability (per cent) – binary	0.066	0.05	0.03
Memberships probability (per cent) – binary	0.05	0.07	0.09
PTA- binary			
Men	0.01	0.09	0.07
Women	0.02	0.08	0.09

As Table 2 shows, in many respects the results presented in this different form closely replicate those obtained in relation to basic skills. We can see that in relation to health that depression goes down in response to gaining a degree. In other words, higher education appears to exercise a protective function in relation to this negative health outcome. Notably the effect is largest for BCS70 at age 30 but is still sustained at age 33 and age 42 in NCDS, though slightly reduced. With respect to health-related behaviours (body mass index and smoking), again we see reductions in the tendency to obesity and

reductions in the tendency to smoke, following the experience of gaining a degree. Thus in the 1958 cohort, a graduate was 11% less likely to smoke than an individual with A levels, a result that still stands up at age 42 (7%). In the younger (1970) cohort, the effect was slightly weaker at 5%.

In relation to attitudes, again we see much the same picture with race tolerance being positively related to graduation and political cynicism negatively related to it. That is to say, graduates are less likely to express political cynicism than those who have not entered higher education. An interesting finding here was the negative relationship between gaining a degree and support for authority (this attitude scale comprises a set of items expressing unquestioning obedience to authority, i.e.; 'you should obey the law even if it is wrong'). Notably, graduates were less likely to sign up to these beliefs than people who had not entered higher education.

Finally graduates are more likely to vote, to be members of voluntary and community organisations and, if they had children to join the local Parents/Teachers Association (PTA). As we can see in the case of voting and memberships, by the age of 42 in NCDS, people were 9% more likely to be members of a voluntary and community education if they had graduated than if they had not proceeded beyond A level.

Overall these figures point to clear returns to higher education, both at the individual level in relation to well-being, but also in their likely contribution to the community. It is particularly notable that membership of voluntary organisations, shows the highest levels of return for the oldest group at age 42 in the 1958 cohort. In other words, there appears to be a kind of 'sleeper effect', i.e. graduates in their later middle age are more likely to engage in the local community than others.

3. The Effects of Learning on Life Chances from 33 to 42⁴

As we described in Section 1 above, the cohort studies provide longitudinal data on thousands of people from birth to age 42. Since we are concerned primarily in this analysis with the impact of participation in any form of education on adult lives, our analysis concentrates on the changes which have occurred in people's lives between the ages of 33 and 42. We relate these changes to whether or not respondents have participated in education during that 9-year period. Thus we can measure whether or not people smoked at 33 and then again whether they have switched from being a smoker to non-smoker (or vice-versa) at 42; or the level of exercise which they were taking or the number of civic memberships they had at both ages; and so on. The emphasis, in other words, is not on the absolute measure of health or civic engagement, but on whether or not a change had occurred as a result of adult learning. In some cases the outcome is expressed as a binary variable, in others as a continuous variable. For the binary variables we are interested in whether adult learning causes individuals to change from membership of one group such as „smokers“ to another group such as „non-smokers“

4 This section derives from work reported in Feinstein et al. (2002).

with resulting social benefits. For the continuous variables we consider whether there was any change in the outcome resulting from adult learning.

The data capture all episodes of participation in learning over the 9-year period. Whilst 42% of the sample registered no participation at all, amongst those who did participate the number of times they took part was as high as twenty or more. Table 3 presents results when the data were analysed for the effect of participation in up to two courses. The overall results are surprisingly strong, given the number of intervening factors at play during that time. It appears that participation in education is strongly associated with most of the outcomes studied.

But before discussing the results we need to enter two caveats. First, the longitudinal data do not show us in which order or sequence events occurred. So we cannot know directly whether education led to the change which we have measured, or whether there was some different sequence, which would mean that we could not attribute the effect to the learning. This is an important issue that requires specific discussion. One point we note here is that we have also found evidence from other data that changes in some of our outcomes do sometimes precede participation in adult learning. This suggests that some other change in life or in orientation towards learning may be underlying both participation in learning and the resulting benefits. In line with our fieldwork results, we find complex cycles of participation and life change, each feeding into the other. This means that although we do find apparent „effects“ of learning in our quantitative study, we do not interpret these in a linear way. Rather, here is evidence that learning plays an important and probably independent role in helping individuals to transform their lives in positive ways and also to sustain positive conditions during times of stress and difficulty.

Secondly, we have detail on the types of course or learning episode in which people participated, for example whether it carried a qualification or not, but not on its duration. So we cannot relate the outcomes to courses of different lengths.

Table 3 gives the estimates of the effects of learning on the changes in outcomes between the ages of 33 and 42. (The estimates are based on Ordinary Least Square regression for the continuous variables and logistic regression for the binary variables.) The table also shows the average or mean change in the outcome variable in the sample as whole, i.e. apart from any change that can be attributed to education. In other words, the results indicate in column 2 the overall changes which have occurred in behaviour or attitudes between 33 and 42; and in column 1 how much of that change is associated with participation in two education courses. The details are discussed in relation to each variable after the table.

Again the estimates take into account earlier circumstances and attainments. We also in some cases distinguish the effects of different types of course: academic from vocational; accredited (leading to a qualification) from unaccredited; and work-based from leisure-based (figures not presented in the table). This is therefore our most comprehensive and rigorous attempt yet to *demonstrate* the existence of education effects.

Tab.3: **Effect sizes**

			Effect of up to 2 courses	Mean change in outcome
<i>Health</i>				
B	1	Gave up smoking -binary variable *	0.033	0.28
C	2	Change in units drunk –continuous variable	-0.445	-0.71
B	3	Increased level of exercise-binary variable *	0.15	0.41
C	4	Change in life-satisfaction –continuous variable *	0.034	-0.22
B	5	Became depressed -binary variable	-0.003	0.09
B	6	Exited depression -binary variable	0.036	0.41
<i>Civic participation</i>				
C	7	Change in race tolerance- continuous variable *	0.047	0.19
C	8	Change in political cynicism- continuous variable *	-0.046	0.44
C	9	Change in support for authority continuous variable *	-0.067	0.26
B	10	Increased political interest -binary variable *	0.018	0.19
B	11	Increased number of memberships -binary variable *	0.029	0.12
B	12	Voted in '97 having abstained in '87 -binary variable *	0.060	0.50

* Statistically significant, $p < .05$ when p-values are accumulated over 4 levels of participation

Smoking (1): On average 28% (.28) of those who were smoking at 33 had given up by 42. The effect of taking up to 2 courses is 3.3% (0.033), which means that 33 in 1000 smokers who experienced one or two courses of adult learning are predicted to give up cigarettes. This is an extremely substantial effect in terms of numbers and a very substantial public health benefit. We found that vocational accredited and leisure courses have a particularly strong „effect“ on smoking.

Units drunk (2): On average, people reduced their consumption of alcohol by 0.71 units. (One unit of alcohol is half a pint of beer or one glass of wine.) This compares with the .445 units that can be attributed to learning. There is a strong effect of vocational, accredited courses: alcohol consumption falls by 0.3 units for each accredited, vocational course attended.

Exercise/sports (3): 41% (.41) of the total sample increased their level of exercise. (Individuals who were already recording the highest possible level of exercise at age 33 were omitted from the analysis.). For 1.5% (.015), the effect is associated with participation in learning, especially in leisure courses, where participation increases the probability of increasing exercise by 1.6 percentage points per course.

Life satisfaction (4): Although the general tendency in the population over this period was towards lower life satisfaction, this downward trend was offset for those engaged in education. Taking up to two courses shows no significant effects but those who took

more than 2 courses had an average gain of 0.09 standard deviation units, compensating for the average change in a negative direction of -.22. This is a striking instance of participation in learning helping people to 'buck the trend'. The effect of academic accredited courses is particularly strong, an increase in life-satisfaction of nearly 5% of a standard deviation per course. There is also a significant effect from leisure courses. This is the kind of relationship which requires further exploration.

Depression (5 and 6): This heading provides an interesting contrast to the other results. For most of the results, the association with education generally points in the 'right' direction, i.e. towards a socially beneficial outcome. For depression, also at first sight the result is positive. 9% (.9) of the total sample became depressed and the probability of becoming depressed falls by 0.3% (0.003) for those who took two courses. However this finding does not approach statistical significance, and when we examine the effects of leisure courses we find an increase in the probability of becoming depressed by 0.5% per course.

How do we explain this? Here we must remember the warning that we do not know about the sequence in which the changes occurred over the 9-year period. So we do not know if participation in education preceded or followed the lapse into depression. On the one hand, it is perfectly plausible that education should lead to depression. Someone may fail a course; or they may succeed in getting a qualification, but the result may not match up to their expectations, for example in getting a job. Education is a risky enterprise, and can have negative consequences. However there is an alternative explanation. Becoming depressed is often a trigger for people to enter education, as a way of dealing with the problem – indeed, it is something which doctors increasingly recommend as a possible solution (James 2000). In some cases this may succeed. But the education cannot always succeed in pulling people out of depression, and in such cases the statistical analysis will indeed show an association between becoming depressed and participation in education – but it will not reveal that this is the sequence.

The finding that it is participation in leisure courses that is associated with becoming depressed lends support to this explanation. These are precisely the courses which we would expect, from experience, depressed people to engage in, more than courses, which lead to a qualification and are therefore more demanding and stressful. Depression is much less likely to be a reason for starting accredited or work-based courses than it is for starting leisure-based courses.

We should stress that our aim is not to 'protect' education by arguing that its outcomes are always positive. As we have noted above, it is perfectly plausible to argue that education can lead to depression, and we have examples of that from our fieldwork histories. The point here is to show how quantitative analysis of this kind needs to be complemented by examination of personal histories at a more detailed level in order to reveal the full range of possible causal relationships.

Such considerations – reversing the causal sequence – can logically be applied to all the relationships examined here. Indeed we would argue that they should be, in order to see just how plausible such explanations might be. For example, it is hard to see how a dec-

line in smoking might casually lead to participation in education, so the reverse causality is hard to maintain for this outcome. On the other hand, it is quite plausible that becoming engaged in civic activity through joining an organisation might generate learning needs which then motivate someone to enroll in education; so we should be cautious about claiming too direct a causal relationship between education and increased levels of civic engagement on the basis of this evidence alone. Rather – as in all life course processes – there is a dynamic two-way relationship between the outcomes and learning, indicating reciprocal causation between the underlying variables.

Outcome 6 is the reverse of Outcome 5. It considers those who were depressed at age 33 and takes a value of 1 if they were no longer depressed at 42. There are no significant „effects“ of learning.

Race tolerance (7): The estimate of the effect of 1 or 2 courses on race tolerance is a change of 5% (0.05) of a standard deviation in race tolerance between age 33 and age 42. This is in itself a small change, at least in numerical terms, but it is important to remember that the average change for the sample population as a whole was only 19% (.19) of a standard deviation. In other words, the effect of 2 courses is equivalent to 21% of the average change, so education is accounting for a large proportion of such change as does occur. The effect of each academic accredited course is particularly large at 8.5% of a standard deviation

We noted above that many respondents interviewed in the fieldwork mentioned that through adult learning they had met a wider range of people, been taught to see things from a variety of perspectives, and consequently had developed more liberal attitudes. This is direct confirming evidence of a positive causal relationship running from participation in education to higher levels of racial tolerance.

Political cynicism (8): Taking 1 or 2 courses is associated with a reduction in political cynicism of 0.05 of a standard deviation. This compares to an average 0.44 standard deviations rise in political cynicism over the period. It thus raises an interesting further issue about the measurement of change: what would have happened in the absence of educational opportunity? If those who participated, and on average found their cynicism reduced, had not done so, it could be assumed that they would have shared in the general increase in cynicism. So whilst the decrease in cynicism may appear rather small in absolute terms, it gains in significance when set against the likely alternative, which is not ‘no change’ but an actual increase in cynicism. Note, too, that as with race tolerance the effect of academic courses is particularly strong.

This links to a major issue raised by Putnam in his discussion of the decline of social capital in the US (Putnam 2000). Given that higher educational levels are strongly associated with social capital; and that educational levels have gone up in the last decades; how, Putnam asks, can it be that social capital has declined? His answer is that it would have declined rather faster if education had not been there to sustain it. Whether or not he is right in this particular explanation, the example illustrates the problem of capturing multidimensional social change, and of allowing for what might have happened if there had been less educational participation.

Support for authority (9): Participation in adult learning can develop an individual's capacity to question and appraise information critically. The analysis shows that it leads to a fall in unquestioning support for authority of .067 of a standard deviation. This compares with an average increase in support for authority of 0.26 standard deviations. Again, the effect is particularly strong for academic accredited courses.

Both our understanding of this effect and our evaluation of it link back to the previous point. First, it shows how education can enable people to go against a prevailing trend. But secondly it is important to take the two factors – political cynicism and attitudes to authority – together. Arguably, education is helping to produce a healthy combination, of less cynicism combined with less willingness to accept authority. In our view this is undoubtedly a more desirable combination than cynical deference.

Increased number of memberships (11): Twelve per cent of the total sample increased their number of civic memberships. The probability of an increase in the number of civic memberships is 18% (.018) higher for those who participated in 1 or 2 courses of adult learning, on average, than for those who did not. The effect is strongest for work-based unaccredited courses for which the average effect is 5.6%.

This constitutes additional evidence for the contribution education makes to civic engagement and social capital. We should however express some reservations about a simple numerical approach to measurement on this dimension. One person's deep involvement in a single organisation may be far more significant than another person's multiple but superficial memberships.

Voted having abstained (12): In these data, 50% of those who abstained in the election of 1987, voted in 1997. The average effect of adult learning was a 6.0% (.06) increase in that probability. This does not deny the fact that voting overall went down. It simply reveals that amongst those who did change to voting from not voting, education is quite likely to have played a part.

4. Conclusion

We have concentrated in this paper on quantitative results of educational effects, in relation to a number of different educational variables and a number of different outcomes. In the evidence presented above we have shown the strong effects of education, which emerge for a majority of our outcome variables. Taking part in education (in up to two courses for the purposes of the analysis presented above, but the point stands more broadly) is closely associated with changes in people's lives – their health, their wellbeing, their social attitudes and their levels of civic participation. It is extremely encouraging that such relationships can be clearly discerned, since so many changes will have occurred in people's lives over the 9-year period that the educational effect might well have been obscured.

What general conclusions can we draw from these analyses? The most fundamental is directly in line with the welfare economist Amartya Sen's ideas about capability, and the

way capabilities interact with each other in the formation of different types of capital. Education imparts different kinds of capability, not all of which involve achievements in the cognitive sphere, e.g. the traditional school subjects of humanities and sciences. Capabilities have social and communicative dimensions involving social interactions in the process of learning. These interactions include those with an experienced professional, a teacher. Achievement produces a social response from other students and the teacher – the feeling of a job well done as approved by others. Our case studies of learners confirm that such experience has a positive effect on individual self-image, enhancing the learners' psychological well-being and thereby strengthening their identity. It also gives them competences, which enable them to function more effectively both in their own 'personal' domains of life and also in the community.

These psychological capabilities are located at the 'identity' apex of our conceptual triangle, which we presented at the beginning of this paper. But there are other capabilities – most notably health and the capacity to engage in civic activity – which are also to be included as essential outcomes of education, and which are closer to other forms of capital (human and social). Capabilities are not static attributes but strengthen (or weaken) and multiply over time. In our research results both through the quantitative analysis of large scale datasets, and from the fieldwork comprising case studies, we see the consequence of capability and capital gain in many different spheres of adult life, the labour market, the family, health and the community.

Our policy conclusion from this work is that education is not so much an option for government but an absolute pre-requisite for the promotion of personal well-being and a cohesive society. This is apart from any contribution education might make to wealth creation at either an individual or a societal level. In the past, investment in adult education in Britain has tended to be sidelined because of its perceived lack of vocational, hence economic, returns. Yet it is through the adult years that the acquisition of capability becomes of ever-increasing importance, underpinning the capital accumulation that in its variety of forms supplies the means of achieving a cohesive and successful society.

We have pointed to some of the inevitable limitations of our analysis, despite the large sample sizes and the fact that such longitudinal data enables changes to be tracked over time. We are increasingly keen on developing genuinely integrated and interactive usage of quantitative and qualitative data; in determining whether the datasets we use have parallels in other countries, and the conceptual models and methodologies we use can be put to use elsewhere. A comparative discussion would indeed be worthwhile.

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Abstract: *In this paper we do the following: First we describe the remit and programme of the University of London's Wider Benefits of Learning Research Centre, which studies the non-economic effects of learning, at individual but also collective level. We set out a theoretical framework for our programme, organised around three 'capitals': human capital, social capital, and identity capital. After that we report results drawn from two large-scale longitudinal datasets. We use the data collected in the 1958 cohort study at ages 33 and 42 to assess the wider benefits of participating in any form of education over the period 33 to 42. This focusses on four clusters of outcomes: health; wellbeing; social attitudes; and political involvement. Additionally, we trace a variety of relationships, and discuss the issues involved in establishing causality. Our conclusion is that education is not so much an option for government but an absolute pre-requisite for the promotion of personal well-being and a cohesive society.*

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